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(54) Lightening element for reinforced concrete floors and staging.

(57) The lightening element for reinforced concrete floors and staging, of the type comprising lightening elements (10), is channel-shaped and consists of light concrete. The lightening element can comprise a reinforcement.

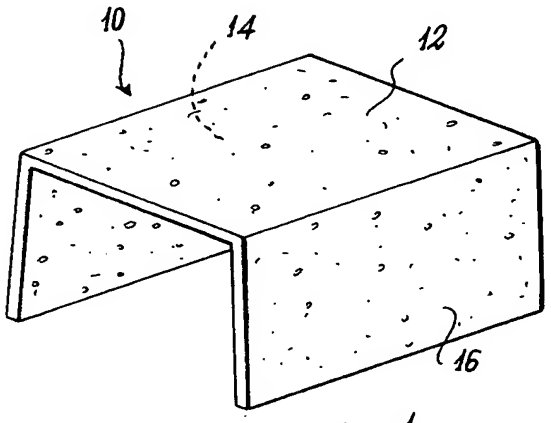

Fig. 1

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ther during transport or during its installation and the laying of the finishing casting for the floor or staging.

The lightening element can be produced in a range of sizes, so as to satisfy all design requirements for floors or staging of the type comprising lightening elements.

In particular, using said lightening element, floors and staging of crossed rib type can be formed.

Conveniently the lightening element can also comprise an element for closing one and/or the other of the two open ends of the lightening element, when used. In this manner, when a row of lightening elements has been installed, said closure element can be used to close the outwardly facing end of the first and last lightening element of the row, hence preventing the finishing concrete entering the tunnel formed by the lightening element of the row (even though it normally does so only over a short distance). The closure element is conveniently flat and can comprise a reinforcement, preferably of electric welded steel mesh.

The invention will be more apparent from the description of one embodiment thereof given hereinafter by way of example. In this description reference is made to the accompanying drawing, in which:

Figure 1 is an isometric view of the lightening element;

Figure 2 is an isometric view of the closure element to be positioned at the front and rear ends of the row of lightening elements of Figure 1; and

Figure 3 is a cross-section (limited for simplicity to a width equal to the width of one prefabricated lattice slab) of a portion of a lattice slab floor, taken on a plane perpendicular to the load-bearing direction of the floor.

As can be seen from Figure 1, the lightening element 10 is channel-shaped (in the figure it being shown inverted, in its position of use). The element 10 consists of a horizontal wall 12 and two lateral walls 14 and 16 extending downwards and slightly diverging. The thickness of the lateral walls 14 and 16 and of the base wall 12 is chosen on the basis of the dimensions of the element itself and of the type of concrete with which it is formed, such as to achieve sufficient strength for its purpose.

As stated, particularly in the case of larger-sized lightening elements these can include a reinforcement (not shown on the drawing for reasons of simplicity and clarity). As is apparent to the expert of the art, a particularly convenient type of reinforcement is electric welded steel mesh.

The closure element 18 shown in Figure 2 is flat and is of isosceles trapezium shape, suitable for closing the two open ends of the tunnel formed by a row of lightening elements 10, to prevent the floor finishing casting entering said tunnel. As stated, the closure element 18 can also be provided with reinforcement (for simplicity not shown on the drawing), for example of electric welded steel mesh.

From Figure 3 it can be seen that the floor portion 20, of lattice slab type, consists of a prefabricated lattice slab 22 comprising an r.c. slab 24 in which three usual reinforcement lattices 26, 28, 30 are partially embedded. During the prefabrication of the lattice slab 22, having made the relative concrete casting - in which the longitudinal reinforcements (the lower longitudinal rods of the lattices 26, 28, 30) and the transverse distribution reinforcements 34 remain incorporated - the lightening elements are rested directly on said casting in two rows (indicated respectively by 10A and 10B in Figure 3), each row of lightening elements being contained centered between two adjacent lattices.

As stated, the lower edge of the lateral walls of the lightening elements 10A and 10B sink slightly into the casting because of their weight. Consequently when the slab 24 has set, the lightening elements 10A and 10B remain fixed permanently in the slab 24 to form a single body with the lattice slab 22.

As is apparent to the expert of the art, once the lattice slab 22 has been installed it is necessary merely to lay a finishing casting 32 of normal concrete to obtain the floor portion 20 of Figure 3.

It will be apparent that the use of the lightening element according to the present invention is not limited to the type of floor (of lattice slabs) shown in Figure 3. In this respect it has already been stated that the lightening element can also be used for example in r.c. floors completely cast in situ and consisting of two plates (an upper and a lower) connected by ribs delimited by the lateral walls of the lightening elements.

It should be noted that the use of the lightening element according to the present invention does not substantially modify any of the conventional operating stages involved in the production of slab floors, or the stages involved in forming floors and staging cast in situ using lightening elements.

Claims

1. A modular lightening element for reinforced concrete floors and staging, characterised by being channel-shaped and consisting of light concrete, possibly reinforced.

2. A lightening element as claimed in claim 1, characterised in that its lateral walls slightly diverge.

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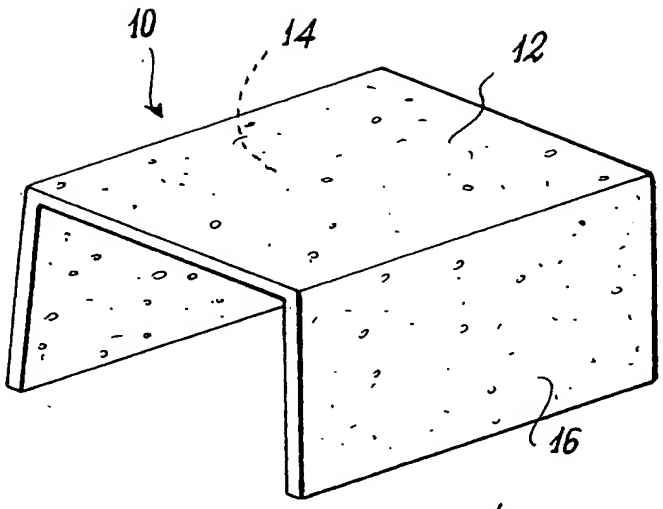

Fig. 1

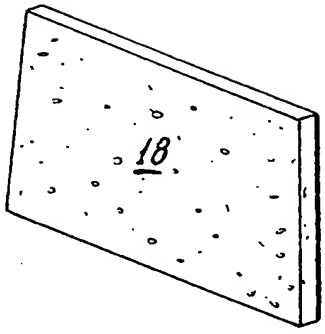

Fig. 2

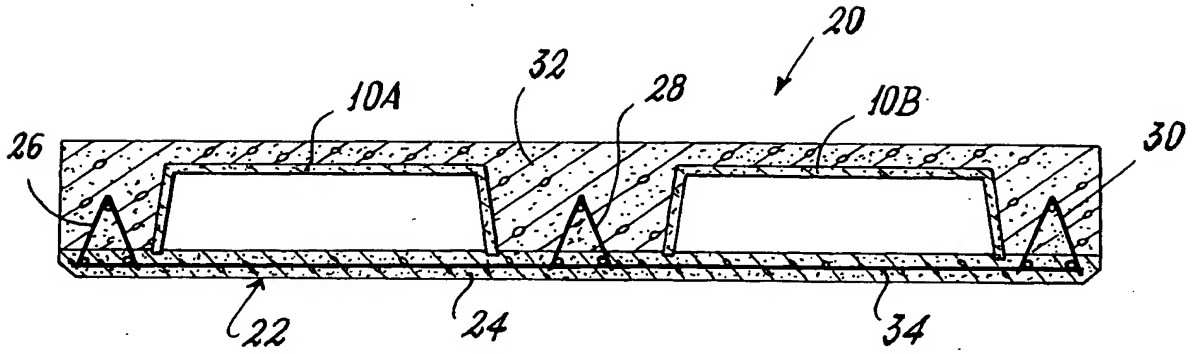

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 94 11 8406.

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X Y	FR-A-1 275 848 (KNAPP) * page 1, column 1, paragraph 2 * * page 2, column 1, paragraph 3 * * page 2, column 1, paragraph 5 * * figures 1-6 * résumé 1,2a,2c	1-3 4,5	E04B5/19 E04B5/36
Y	DE-A-15 34 696 (ATLAS STONE COMPANY) * page 2, paragraph 5 * * figures 1,4 *	4,5	
A	GB-A-2 070 097 (SOFTWARE LICENCEES LTD) * page 1, line 16 - page 1, line 20 * * page 2, line 2 - page 2, line 5 * * page 2, line 33 - page 2, line 38 * * figures 1,2 *	1,3	
A	CH-A-565 909 (KATZENBERGER) * column 1, line 56 - column 1, line 59 * * figures 1-7 *	1	
A	CH-A-167 077 (NETSCHER)		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
E04C E04B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	27 March 1995	Hendrickx, X

CATEGORY OF CITED DOCUMENTS

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